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TANGANYIKA TERRITORY

DEPARTMENT OF AGRICULTURE

Annual Report

1929/30

PART I

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TANGANYIKA TERRITORY

DEPARTMENT OF AGRICULTURE ANNUAL REPORT 1929/30.

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DEPARTMENT OF AGRICULTURE.

REPORT FOR 1929/30.

In accordance with the practice instituted last year this Report is divided into two parts: Part I deals with Agricultural Administration and Progress, and Part II with the Agricultural Investigation that has been carried out during the period.

STAFF.

1. The year under review saw an important change in the staff of the Department in the transfer of Mr. A. H. Kirby, O.B.E., who had occupied the position of Director since 1921, to a similar position in Sierra Leone, and the appointment of Mr. E. Harrison, the Deputy Director of Agriculture in Kenya, in his place. Mr. R. W. R. Miller, Senior Agricultural Officer, was transferred on promotion as Director of Agriculture to Barbadoes. The position of Agricultural Economist was filled by Mr. R. R. Staples, formerly of the Department of Agriculture of the Union of South Africa. Three District Agricultural Officers, Mr. A. J. Wakefield, Mr. A. S. Richardson and M. C. K. Latham were promoted to the post of Senior Agricultural Officer. Five additional appointments of District Agricultural Officer were filled by graduates of the Imperial College of Tropical Agricultural, Trinidad. At the close of the year the European staff was constituted as follows:—

Head Office: Director; Deputy Director; Agricultural Economist; three clerks.

Divisional Scientific Staff: Entomologist; Mycologist; Assistant Entomologist; two Cotton Investigators.

Field Staff: Four Senior Agricultural Officers; twenty-five District Agricultural Officers; Head Gardener, Botanic Gardens; ten Agricultural Assistants.

A complete staff list is given in Appendix I.

FINANCE.

2. The total provision for the direct work of the Department increased from £52,560 in 1928-29 to £61,660. Of this sum £31,291 was for personal emoluments, including £5,729 for 240 African Instructors. Provision for indirect aid in connection with the work of the Department amounted to £11,035 in the Department's Estimates and included contributions to the East African Agricultural Research Station (£6,000),

and the East African Meteorological Service (£2,400 for equipment and £850 for maintenance). The Colonial Office Agricultural Scholarship Scheme, the various Imperial Agricultural Bureaux and the Colonial Agricultural Research Service were also supported.

3. The sum of £33,954 was spent on the campaign for the destruction of locusts, making the total expenditure on this work since the first invasion of the pest in 1929, £34,759. There is every reason to believe this expenditure is now at an end.

GENERAL AGRICULTURAL ASSISTANCE.

4. As mentioned in the preceding year's report it is wished to emphasise that there is no definite boundary between what is done in agriculture for the planters and for native farmers. The division is made artificially simply for convenience. Mention should also be made of the great benefit to the native agriculture which is slowly but surely being brought about as the result of the native himself being brought into close contact with improved methods of farming by working on the estates of planters.

5. The work of the field staff was considerably interrupted at the beginning and towards the close of the year by the necessity of withdrawing a number of officers for anti-locust duty.

6. In the south-western highland area of Iringa, particular attention has been paid to the establishment of a Turkish tobacco industry amongst the European planters, and at the close of the year an experimental consignment of sixty bales of the previous crop was in preparation by an officer of the Department. Assistance has also been given in the testing of certain of the high-rainfall portions of this area for tea growing, and a contribution of £500 towards the purchase of tea seed was made by Government. Although still in the experimental stages, the initial trials have been encouraging and it is hoped to provide soon an officer trained in tea-cultivation to foster and guide this industry. Seed of a number of economic plants has been supplied to planters for trial purposes, special mention being made of the Tung-oil trees (*Aleurites Fordii* and *A. Montana*), seed of which, supplied for trial purposes by the Tung-oil Committee of the Imperial Institute, has been fairly thoroughly distributed in the sub-humid areas of the Territory. Encouraging growth of the earlier plantings of this oil tree has been reported, but some years must elapse before the trees come into bearing. The Land Development Survey has completed its agricultural and pastoral survey of the south-western area and the Uluguru Mountains. It has provided a considerable amount of useful information of the natural conditions and agricultural possibilities of these areas, which has been published. It is regrettable that there has been little opportunity hitherto for the Department to assist planters with sisal, the exports of which in 1929 exceeded the value of the combined remaining major export products. It is hoped, however, that with the aid of the Colonial Development Fund stations will shortly be established, where investigational work will be carried out by the

Department in co-operation with the East African Agricultural Research Station. The work of the Department for plantation coffee, mainly in the Kilimanjaro, Meru and Usambara areas, has been interrupted by absences on leave of officers and withdrawal of staff for anti-locust duty. Negotiations are in progress for the establishment, with assistance from the Colonial Development Fund, of a well-staffed and equipped experiment station to serve the main coffee growing areas. Planters were assisted individually by advice given by correspondence, particularly by the Entomologist and Mycologist, and by personal visits to plantations, chiefly again by the above officers. In addition, thirty-eight articles on agricultural subjects were published in the local press.

7. Assistance to native agriculture has been mainly in connection with food crops, cotton and coffee. The agricultural stations have experimented with numerous introduced varieties of millets, sorghums, maize, pulses and groundnuts with a view to the introduction of the best varieties into the native agriculture; in this latter connection the sub-stations (seed and demonstration farms), financed by the Native Treasuries, have been of great assistance. As a result of this work, notable improvement has been effected in extensive areas in the last few years, in methods of cultivation as well as quality of products. The important native coffee industries in the Bukoba and Northern Provinces have received the support of the Department in a variety of ways, including the inspection of the plantations under the Coffee Disease Regulations and the enforcement of these.

DETAILS OF ASSISTANCE AND PROGRESS.

8. The varying conditions and consequently diversified agriculture of the Territory make is impossible to include the different activities in a general account of agricultural assistance. The more detailed information is therefore given below, under the names of the Provinces, together with the account of general progress by which it is naturally accompanied.

CENTRAL PROVINCE.

9. The staff in this Province consists of one District Agricultural Officer with nine African Instructors. An Agricultural Assistant, for sub-station work, is to be added in 1930 and a District Agricultural Officer in 1931. This Province is a large producer of groundnuts and grains, though in drier years a shortage of food crops occurs in certain of the more arid areas. It will possess an increasing importance shortly because of new railway construction tapping the more productive areas of the Province.

10. Over nearly the whole of the Province the main rains for 1929 were much below normal and finished early; the maize and groundnut crops suffered most. The first three months of 1930, on the other hand, experienced most unusual rains and considerable damage to crops was caused by floods.

11. The selection work on groundnuts and on bulrush millet were continued for a second year. The sub-station at Mkulusi was closed down, but the work of the remaining six was most encouraging. There has been a keen demand amongst the natives for improved varieties of food plants grown at the sub-stations. The District Agricultural Officer reports that the whole of the large Duromo valley will soon be growing only Potchefstroom Pearl maize, which is well suited to the valley, a remarkable achievement in the introduction into native agriculture of an improved variety. White Cango maize is better suited to most of the remaining districts of this Province, which are drier, and good progress is being made in inducing the natives to plant the seed. The demands for cuttings of the improved strain of cassava obtained from the Morogoro Agricultural Station, and for sweet potato cuttings, greatly exceeded the supply. Of the pulses the cowpea *(kunde)* continues to be the most popular, and gives yields up to 1,300 lbs. per acre. A demand for lima beans also exists. Soya beans and wheat have again proved unsatisfactory. The experimental trial of date palms, imported from Iraq in 1927, have suffered considerably from the attacks of white ants. Frequent weeding is becoming more popular with the native farmer, as the result of demonstrations at the sub-stations.

12. A number of fodder and forage plants and shrubs have been under trial at the Singida station, but the majority suffered badly from drought in the 1928-29 season. The most successful have been the Carob bean and the Old Man and Upright salt-bushes. The well-known drought-resistant Sheep Bush *(Pentzia incana)* and Karroo Bush *(Tetragonia arbuscula)* have also been established at the station. In the future it is intended, however, that experimental work in connection with fodder plants should be carried out at the Ibadakuli Agricultural Station.

NORTHERN PROVINCE.

13. The staff in this Province consisted of a Senior Agricultural Officer (for the Tanga Province as well), two District Agricultural Officers (one for coffee work only), two Agricultural Assistants for coffee work, and twenty-six African Instructors. The departure of the Senior Agricultural Officer on transfer after the first three months of the year (the shortage of staff not making it possible to replace him up to the present), the absence of the District Agricultural Officer (Coffee) on leave and, above all, the heavy calls on the time of the staff for locust duty, have rendered the period under review a difficult one for administration and guidance of the agriculture of the Province. An element of discontinuity of work and purpose has been unavoidable and no considerable extension has been possible.

14. The invasion, from the north, of the Northern and Tanga Provinces by locusts early in 1929 culminated in an intensive campaign against hoppers from May to July, in the Arusha, Moshi and Pare Districts. A few swarms escaped destruction, and a scouting and patrol organisation was maintained under the charge of the Senior Agricultural Officer from the Moshi Agricultural Office, until further invasions from

the north three months later necessitated a second campaign, under the direct control of the Entomologist of the Department. The early onset of the heavy rainy season caused much havoc to the locust swarms and the campaign terminated, except for minor operations, in February 1930. In addition to the damage suffered from locusts, the rainfall for 1929 was much below normal, at the Moshi station only 25·49 ins. being recorded as compared with a normal annual precipitation of 44·20 ins. The comparative failure of the 1929 long rains had a direct effect on all crops. The Pare district, which normally has no surplus even in a good season, suffered from a food shortage, but distress was alleviated to a considerable degree by cash and rations paid out for locust work.

15. The 1929 season was a very disappointing one for coffee planters, the main export industry in this Province. The direct result of the unfavourable weather conditions on the coffee plant was a reduction in vitality and bearing capacity. Loss from fall of the newly-formed berry was consequently unusually high. Damage from thrips was exceptional, affecting even the upper slopes of Kilimanjaro. Planters delayed spraying, hoping for rain which in normal years effects a natural control of this pest. A third adverse factor, which was prominent, was Antestia attack with the resulting berry disease, recently proved by the Mycologist to be a fungus infection of the berry through the punctures made by the Antestia insect, which apparently is the chief carrier of this disease. Fortunately, anticipations regarding the extent of damage from the locust invasion were not realised in full. The production of coffee in the Northern Province for 1929 as compared with the previous two years is as follows:—

	1927 cwts.	1928 cwts.	1929 cwts.
Native	8,001	8,210	11,431
Estate	42,427	37,522	26,511
Total	50,428	45,732	37,942

16. The short rains at the end of 1929 were excellent and continued without any long dry periods up to the opening of the big rains of 1930. Flowering was somewhat irregular but prospects are good for the next crop, alleviating partly the depressing effect of the fall in price of coffee. It was decided that the co-operative coffee manurial experiments with planters, which have been carried on for two seasons and have not proved satisfactory, should be discontinued pending the appointment of an Agricultural Chemist and the organisation of investigation work. A site for a coffee experiment station at Moshi has been provisionally selected by a committee consisting of the District Officer, the District Agricultural Officer and two planters' representatives, but the matter awaits a final decision in regard to the establishment of experiment stations with the aid of the Colonial Development Fund. Kent's Arabica coffee seed is becoming increasingly popular, as instanced by the importation of 1,900 lbs. of seed during the year.

17. The marketing of the Kilimanjaro native coffee was carried out, as last year, by the Kilimanjaro Native Planters' Association. The grading was done by the Association's officials trained during the previous season by African Coffee Instructors under the District Agricultural Officer (Coffee). According to the report of the latter, this method of grading has not been altogether successful and may call for further attention on the part of this Department. The Arusha native crop was marketed on consignment by individuals, on the advice of the Arusha Native Planters' Association, also without the assistance of the Department. The Agricultural Assistants (Coffee) combined their tours of instruction with inspection under the Coffee Regulations, 2,137 native plots being inspected. One hundred and fifty-one warnings were given but only one prosecution was necessary.

There are five sub-stations in operation in the Province. The work in the Usangi (North Pare) and the Rombo (East Kilimanjaro) sub-stations has been continued with food crops, butter beans and vegetables, and lucerne has been established at Rombo. The Kahe sub-station will shortly be closed down owing to the apathy of the natives in that area and the difficulties of supervision. The two remaining sub-stations are dealing mainly with the distribution of improved varieties of food crops and of vegetables and the demonstration of better cultural methods. A site has been selected, and clearing will shortly commence, for a new sub-station immediately adjoining the recently constructed court house of the Chagga Council, within three miles of Moshi, and will afford improved facilities for demonstrations and the training of Instructors.

19. Owing to drought and the first locust invasion the 1929 native cotton crop was a small one. In the Kileo-Kahe area and the Pare district the crop was almost a complete failure. The following table gives the production (in pounds) of native and non-native cotton lint for 1929 as compared with the previous two years:—

	1927 lbs.	1928 lbs.	1929 lbs.
Native	57,208	71,642	2,743
Non-native	40,457	33,492	34,599
Total	97,665	105,134	37,342

20. The maize crop is increasing in popularity both with the planters and native farmers, the exports for 1929 from this Province being 1,281 tons (largely estate production), as compared with 21 tons for the previous year.

21. In the Arusha area 19,713 acres were alienated in 1929 for general estate agriculture. In the Moshi district two blocks, one of 2,000 and one of 3,000 acres, were leased to Europeans on a 37½ years' lease, with surrender after 15 years without compensation. This land is situated below the Arusha-Moshi-Mimo roads and is intended for maize planting. The area under sisal has been considerably increased, and 16,456 cwts. of fibre were produced in 1929 as compared with 1,612 cwts. in the previous years.

22. The three Native Authority experimental robusta coffee plantations on the Ufiome Plateau are making very satisfactory growth.

23. Recently several Europeans have taken up land in the Ufiome District and are planting Arabica coffee. Of these, only one plantation will come into bearing next season for the first time.

TANGA PROVINCE.

24. The Agricultural Officers for this Province (a Senior Agricultural Officer in charge of the north-eastern Circle (comprising the Northern and Tanga Provinces) and one District Agricultural Officer), have hitherto had their headquarters at Lushoto. The Senior Agricultural Officer has now been transferred to Moshi, which is now made more central by the extension of the railway to Arusha. A second District Agricultural Officer is to be stationed in this Province shortly; in the meantime the present officer will be transferred to Tanga, where he will be more conveniently situated for plant importation inspection, the duties in connection with which are greatly increasing. The agriculture of the Province is sharply divided by the topographical division into hills (the line of the Usambara and Pare hills) and plains (coastal to inland) and the division of the areas of work of the two officers will be in accordance with this. The African staff now numbers twenty as compared with seventeen in 1928-29, and their work has been mainly concerned with the spacing, lining and thinning out of the crops coupled with demonstrations of improved methods to native cultivators on the sub-stations, and to school children in the areas where school gardens have been established.

25. The District Agricultural Officer in his report states:

> "The Native Authorities in the Usambara, Handeni and Pangani districts have taken a keen interest in the sub-station work, and now provide and maintain one or two Native Authority gardeners from Native Treasury funds, to work and attend to the sub-stations. These native gardeners, who were trained in the first instance by a senior Instructor of the Department, are proving themselves a decided asset, since with only occasional supervision they are able to carry out the general routine operations. Thus it is now possible for the Instructors to tour their districts more regularly and devote more time and attention to educational and propaganda work than has been possible in the past."

26. The Province is now being served by fourteen sub-stations, one in Tanga district, four in the Usambara district, two in the Pangani district, and seven in the Handeni district. The Muhesa sub-station, near Tanga, is principally for the extension of citrus growing among natives, who find a ready local sale for the fruit to the employers of the large amount of native labour in this and the Northern Province, as well as in Kenya. The citrus nursery started in 1928 has been extended by the budding of the best varieties on the rough lemon stock, and the excellent Binti Juma orange has been introduced from Zanzibar for propagation and distribution. The station is also being used for the growing of seed of improved varieties of maize, beans and vegetables for planting at the

other sub stations in the Province as well as for local distribution. The oil-palm seedlings raised in 1928 have maintained a satisfactory rate of growth, and some three hundred young palms are ready for distribution to natives favourably situated in the Magorotte district of Muhesa, where an oil-extracting plant is operating. The pineapple nursery has been extended and a keen demand exists amongst the natives around Muhesa for the superior variety which is being distributed. The two sub-stations at Langoni and Mioume Mingi in the Pangani area have been maintained as demonstration and seed-stations for the distribution of groundnuts, simsim and improved varieties of maize. The scheme of cropping adopted in the seven Handeni sub-stations was planned firstly with the object of introducing and multiplying improved varieties of maize, sorghums, groundnuts, simsim and tobacco, whilst cotton plots were laid down to demonstrate better cultural methods. The early maturing and higher yielding sorghums (Bonganhilo and Feterita) are being particularly sought after by the natives and are rapidly replacing their own much less prolific varieties. The sub-stations in the Usambara Hills are dealing mainly with maize, beans, potatoes, rice and robusta coffee. Attention was given to the problem of obtaining vigorous potato "seed" for planting and the importation and distribution of a quantity of good seed from Kenya was carried out. In the Bwiti district, robusta coffee growing by natives, who are keenly interested in this crop, has been encouraged and aided by the distribution of seedlings.

27. The work in connection with stone-fruits at the Lushoto station has been discontinued as it is thought that there is little likelihood of an export industry of this class of fruit materialising. An industry of this nature, besides being very highly specialised, would require an elaborate and expensive system of investigation, inspection and grading.

28. The production of cotton in the Handeni district by natives continues to make progress, approximately thirty-seven tons of lint being produced during the season under review. The Langoni ginnery in the Pangani district, and the Mamundu ginnery in the Handeni district, together with the buying posts at Msoto and Sindeni were abandoned soon after the close of the 1928 cotton season for economic reasons. New ginneries were established at Kwanegero and Mzundu, and these two centres were utilised throughout the season for the purchase of seed-cotton as well. The growing of Arabica coffee is attracting the attention of many natives, principally in the vicinities of Mlale, Uuga and Bumbuli in the north-western Usambaras, and numerous small coffee-fields have sprung into being during the year, bringing the total number of native growers to approximately two hundred. The major portion of the coffee development is very scattered in distribution and bananas are generally cultivated to provide shade. Robusta coffee growing by natives in the Bwiti district of the north-eastern Usambaras is being encouraged by the Department, as many areas in this district appear to be eminently suited to this crop. Approximately 33,000 seedlings were ready for distribution from sub-stations early in 1930. Potatoes and other vegetables for Tanga are becoming of increasing value to the natives of the Usambara Hills as cash crops.

29. The main estate product of the Province, sisal fibre, greatly increased in the quantity exported through new plantings coming to maturity. In 1929-30 36,822 tons were produced, as compared with 27,452 tons in 1928-29. Approximately thirty tons of lint cotton were produced as an intersown crop in sisal plantations. The estate coffee industry in the eastern Usambaras has shown little increased activity. The yield of coffee for the season was unusually low due to the failure of the August and September rains.

30. Locust invasions from the north were experienced early in 1929 and again in November 1929 and January 1930. Considerable damage to crops resulted from the first invasion but comparatively little from the second and third. An intensive campaign against hoppers and egg-lain areas was waged with the satisfactory result that no further swarms of local origin are expected.

EASTERN PROVINCE.

31. In this Province District Agricultural Officers are stationed at Morogoro (for the Morogoro and Kilosa districts), Mpanganya (for the Rufiji district) and Bagamoyo (for the Bagamoyo district). Experiment stations are maintained at Morogoro (shortly to be made a Plant Introduction Station purely) and Mpanganya, and each of these is provided with a European Agricultural Assistant. The work at the two Experiment Stations is described in Part II of the Report dealing with work of investigation.

32. The rainfall records at the meteorological stations in the Province show that the precipitation for 1929 was sixteen per cent. below normal, the unfavourable season being accentuated by the similar drought in the previous season, particularly in the Rufiji district. The rainfall for the first three months of 1930 has, on the other hand, been excessive and considerable damage to crops has resulted in areas subject to river floods, particularly in the Rufiji Valley, where cotton and sisal suffered especially.

33. In the RUFIJI DISTRICT, with its variable climate and frequent lengthy dry periods in the growing season, the important principle of the lining-out and proper spacing of crops continues to receive the principal share of the Department's services of tuition to native farmers. The use of White Cango maize, suited to such climatic conditions, is being urged with some success, and the distribution of maize seed to natives has been confined to this variety. The need for extending the cultivation of Unyengwa rice, a hill-land type, has received considerable attention, not only for its drought-resistance and good yields, but also with the object of standardising the product (one hundred or more local types are being grown at present). Work has begun at the Central station, with satisfactory early results, in improving the yield and resistance to lodging of the Unyengwa rice, by selection of pure lines; success with this will create a wider demand for the variety. The seed distribution of pulses, especially of Bonavist bean, and of groundnuts, made over the western Rufiji during the past three years mainly for domestic use, has had a

rapid result, most desirable for improvement of the native diet, in producing a general cultivation of the pulses, where previously practically none had been grown. Plots of Tepary beans have been included at each sub-station, this being the first occasion that the seed of this crop had been distributed from the Experiment Station. Of the three sub-stations, the work at Mohoro during the season was a complete failure, due solely to the non-co-operation of the sub-chief; the Rusende and Kwangwasi sub-stations were very successful, particularly the former, where great interest was taken by the natives in the excellent five-acre crop of the hill-land rice, Unyengwa. As the result the seed of this variety was much in demand for distribution to natives. The Mbwera ploughing school continued to receive the support of the Arab owners of coconut plantations, but little attention from the natives.

34. The production of native-grown seed-cotton in the Rufiji district was 181 tons, an increase of fifty-six per cent. over the previous year's total. The increase in production is satisfactory, especially in view of the poor rainfall experienced (about one thousand acres of late-sown cotton failed to germinate on this account). The variable production of cotton in this district is shown by the fact that a production of 420 tons in 1922 had dropped to twelve tons by 1927, and is now again on the upward grade.

35. Estate agriculture in the Rufiji district is concerned entirely with sisal and cotton. Cotton was produced to an extent of 107 tons, an increase of 114 per cent. over the previous year. Less difficulty than usual was experienced with the picking of the crop. The total of 6,120 acres under sisal is an increase of 1,340 acres over the previous year. The first cutting of sisal was made in August 1929; a second factory is to be erected next year, and by 1932-33 sisal production in this district should reach approximately 4,000 tons. A scheme is under discussion for the construction of a light railway, with the material made available by the Lindi line no longer being operated, to run along the north bank of the river from Mpanganya down to Beta or Kilindi to meet the river steamer for connection with the coastal service. This scheme offers permanent facilities of easy transport which should result in further estate development. As yet less than 6,500 acres are being cultivated out of more than 32,000 acres which have been alienated.

36. In the MOROGORO DISTRICT it was found necessary to reduce the sub-stations from seven to four; each of the four Native Authorities has now only one large agricultural undertaking of the kind within its boundaries. It is considered that at the present stage this is all that can be efficiently maintained by the natives and supervised by the Department and that until such time as selected local natives receive sufficient agricultural education to permit effective management by themselves, it is advisable to concentrate, rather than spread the available services and funds on a larger number of smaller undertakings. The distribution of seed of improved varieties of crops, tested at the Experiment Station at Morogoro, continued, chiefly of varieties of maize, sorghums and

legumes. Black gram, which received mention in the last Annual Report, continues to give success where it is grown; the grain is decidedly insect-resisting when in storage and it is unfortunate, therefore, that as yet the natives are averse to taking this crop into their cultivation to replace the green gram.

37. Two sub-stations were opened in the KILOSA DISTRICT during the year. These represent the first agricultural activities of the Native Authorities in this district. In both cases excellent sites were obtained near the headquarters of the Chiefs and the stations were successfully planted up during the short rains. Improved varieties of maize, sorghums and pulses were grown, and robusta coffee nurseries were established at the higher altitudes in the Nguru Hills. Seed of improved varieties of maize (Potchefstroom Pearl and White Cango) was purchased from South Africa by the Kilosa Native Authorities through the Department, for distribution in the district.

38. The recently-begun native coffee industry in the Uluguru and Nguru mountains suffered a temporary set-back due to the failure of an entire consignment of robusta seed to germinate in the nurseries. There was, therefore, no further distribution of seedlings made during the year. Fresh robusta coffee seed was obtained and gave excellent germination, the seedling plants from which were ready for distribution during the heavy rainy season of 1930. The District Agricultural Officer states that the native interest and enthusiasm for this crop is undiminished and the demand for the seedlings persistent. Recommendations for the instituting of an Arabian coffee industry at the higher levels were made and approved but work was not commenced during the season owing to the transfer of the District Agricultural Officer.

39. Estate agriculture continues to increase in both the Morogoro and Kilosa districts and much new land was brought into cultivation during the year under review. Sisal-growing continues to be the main activity though it is a general custom to interplant all young sisal with cotton. There are in addition some extensive pure cotton plantations. Drought seriously interfered with the season's crop, but nevertheless a total of 4,053,780 kilogrammes of seed-cotton was produced as compared with 4,769,888 kilogrammes for the previous year. A fuller report on the cotton production of the Province is given later.

40. As regards the BAGAMOYO and DAR ES SALAAM DISTRICTS of the Province, the services of a District Agricultural Officer were only available during the latter end of the year, the Provincial Administration giving as much assistance as possible for the promotion of native agriculture.

41. A number of invasions of locust swarms were experienced during the first part of the year and did considerable damage to maize and cotton crops, particularly in the Rufiji district, but were successfully dealt with.

TABORA PROVINCE.

42. The activities of this Department are, owing to tsetse fly infestation, confined principally to the three northern districts of Shinyanga, Nzega and Kahama. Besides the Senior Agricultural Officer for the north-western Circle, the staff consists of a District Agricultural Officer, two Agricultural Assistants, one at Nzega and the other at the Ibadakuli Agricultural Station, and thirty-six African Instructors, including several who have been trained to use a plough drawn by oxen.

43. As in other areas, the rainfall for 1929 was considerably below normal, the maize and cotton crops suffering most. Notwithstanding the drought the groundnut crop was good, 4,500 tons being exported as compared with 2,400 tons the previous season. The Virginia Bunch variety of groundnut introduced by the Department is rapidly replacing the indigenous type, much to the benefit of the export industry. The higher yield and ease of lifting of this variety appeals to the native and the crop is increasing in popularity with the natives both as a food and a cash crop. The millets and sorghum crops were fair, demonstrating the superior ability of these foods to withstand drought. The white sorghum is replacing the red, and the area under cassava and sweet potatoes is increasing. The cassava has proved an excellent standby in the poor season and is rapidly increasing in favour as a food crop with the natives. The exports of gum arabic have increased rapidly, 1,043 tons being exported in 1929 as compared with 619 tons and 191 tons for 1928 and 1927 respectively.

44. The unfavourable season was unfortunate for the native cotton crop, as it came at a time when this crop was expected at length to establish its value among the natives. Approximately 135 tons of seed-cotton only was harvested, the proportion of seed cotton harvested to cotton seed distributed being the lowest since the introduction of the crop. For the 1930 crop 185 tons of seed have been distributed, and the prospects are very much better than in 1929.

45. The work in the sub-stations, of which there are now seven, is conducted as extension work, for demonstration and seed-multiplication, from the Ibadakuli Experiment Station, situated near Shinyanga, the work of which is described in Part II of the Report, dealing with investigation. Particular attention has been given to improved varieties of groundnuts, maize, sorghums, millets and beans. The ploughing schools at Ibadakuli and Ndomo have been maintained; also the ox-training centres at Mangoi, Nyama, Ndala and Nyawa. Every assistance has been given to native plough owners through the ploughing instructors and repair shops, and although progress in this direction has been slow the practice of ploughing with oxen may be said to have definitely become established among the more progressive natives.

46. Attention is being paid to the matter of erosion and overstocking, which is especially harmful in this area of light-textured soils. Under the direction of the District Officer thirty-five miles of wind breaks, consisting of five rows of *Cassia siamea* trees, have been planted in the Usiha

sultanate. Trials with grasses and fodder crops which may be suitable for the overgrazed areas subject to erosion are being carried out at the Ibadakuli Experiment Station. The problem of overstocking does not fall under this Department, whose duty it is, however, to co-operate with the Department of Animal and Veterinary Services and the Administrative Officers, by finding that part of the solution which agricultural investigation can supply.

MWANZA PROVINCE.

47. Agriculturally, the large southern region of this Province is one with the large northern portion of the Tabora Province, and, except for its Lake Coast area, should receive the benefit of the investigational work being carried out at the Ibadakuli Experiment Station. In addition to the Senior Agricultural Officer for the north-western Circle, the staff employed is one District Agricultural Officer, two Agricultural Assistants (chiefly for ploughing instruction and sub-station work) and thirty African Instructors.

48. No further sub-stations, of which there are seven at present, have been opened. The present site of the Kisessa seed farm is to be abandoned this year in favour of a more suitable one. The work with crops at the sub-stations is shown in Appendix II. Improved varieties of rice, maize, sorghums, beans and peas have been grown for demonstration, seed-multiplication and introduction into native agriculture. A comparative trial with the U4 variety of cotton was begun at two of the sub-stations. This variety originated in South Africa, where it has shown outstanding yielding and drought-resisting abilities and also produces a fibre of excellent quality. A trial with ensilage for feeding stock during times of scarcity was also carried out for the first time. The sub-stations in Mwanza, Kwimba and Maswa districts have done useful work in ploughing instruction, demonstration of new implements and in training oxen for ploughing. Robusta coffee nurseries were established at four centres on the islands of the Uzinza district.

49. Cotton maintains its position, gained in 1924, as the chief cash crop of the Province, and is practically entirely native production. The dry season resulted in a reduction of sixty-six per cent. in output as compared with the previous year, as will be seen in the following table:—

Season	Production of lint, in lbs.	Percentage increase or decrease
1923	1,807,337	
1924	2,128,694	+18
1925	3,510,689	+65
1926	2,687,650	−24
1927	2,648,995	− 2
1928	4,422,357	+67
1929	2,961,602	−66

Estate production accounted for 2·2 per cent. of the season's output of lint. For the 1930 crop 802 tons of cotton seed have been distributed, exceeding the amount distributed the previous season by 197 tons. The exports of the other more important economic crops, compared with those for 1927 and 1928, are shown in the following table: —

Product	In cwts. 1927	1928	1929
Groundnuts	86,040	44,728	34,361
Rice	61,769	42,523	34,060
Other grains	3,197	2,882	2,870
Simsim	15,780	12,148	9,560
Gum Arabic	1,190	215	113
Sisal	40	260	421

50. Estate agriculture in the Province is hardly significant and is chiefly confined to the growing of cotton and sisal: a local rope-making plant for the latter reduces the exports of the fibre considerably.

51. Locust invasions from the north at the beginning of the year caused serious apprehension, but little damage resulted. In November 1929 scattered swarms again invaded all parts of the Province and also portions of the adjacent Provinces. Little egg-laying, however, took place and the swarms disappeared with the heavy rains which fell in December.

BUKOBA PROVINCE.

52. In this Province a District Agricultural Officer is stationed at Bukoba with two European Agricultural Assistants to assist him in the coffee work under his charge. This work is also assisted by ten African Instructors employed by the Department, and ten African Inspectors employed by the Native Administration for observance of the Native Authority Coffee Regulations by the many thousands of growers. In the Biharamulo district of the Province, a District Agricultural Officer is stationed assisted by fourteen African Instructors employed by the Department, chiefly for cotton, and two employed by the Native Authorities for instruction in the manufacture of beeswax.

53. In the BUKOBA DISTRICT, the main rainfall for 1929 was unfavourable and resulted in the production of 6,794 tons of coffee as compared with 7,837 tons in the previous year. The prices obtained in 1929 were slightly lower and the customs valuation for the two years was £478,311 and £400,011 respectively. In regard to the native coffee industry, the District Agricultural Officer for Bukoba reports that with the provision of more constant supervision by European officers and a more rigid application of the Native Authority Coffee Regulations, the general standard of cultivation in native coffee plantations continues to show steady improvement, with the exception of certain areas in the country of Kianya which,

largely through apathy on the part of the Native Authority, do not come up to the standard of the remainder of the district. Particular attention was given to the regular removal of superfluous growth and dead wood, the removal of unproductive trees and prompt and regular picking of ripe coffee. Instructions were issued for the carrying out during August and September of control measures against the Coffee Bean Borer (*Stephanoderes hampei*). These instructions provided for the collection and burning of all dropped coffee from beneath the trees and dried cherry left on the trees, and the subsequent application of a fresh mulch. The measures were, on the whole, carried out in a fairly satisfactory manner. Spraying materials for use against insect pests are now held in readiness by the Native Authorities at important centres throughout the district. Drying on mats has become general, and prosecutions in Native Courts for disregard of this rule are now rare. The old method of hulling with a wooden pestle and mortar continues, though to a small extent it is being replaced by the use of locally-made wooden hullers, which although of low output per hour, hull the coffee satisfactorily, providing it is perfectly dry. By far the greater part of the hulling, however, is done by the petty itinerant buyers. The District Agricultural Officer also reports that derelict and partly derelict plantations are still one of the worst features of the Bukoba native coffee plantations. With the co-operation of the Native Authorities, a large number have been successfully dealt with, but much still remains to be done. Bukoba aided coffee-growing in other parts of the Territory by providing 1,285 lbs. of fresh selected robusta coffee seed. Propaganda discouraging Arabica coffee in favour of robusta in all areas where the latter is the most suitable, is still being carried out.

54. The area under estate coffee increased from 552 acres to 643 acres, approximately half of this acreage being planted to Arabica, and the remainder to robusta coffee. Altogether there are only ten estates with coffee plantations, the largest having 200 acres under this crop and the smallest ten acres. This is the only European agricultural industry existing in the Province.

55. The work at the Nyakolo sub-station for the year has been directed towards bringing the soil, which is in an impoverished condition, to a better state of fertility by green manuring and the application of such cattle manure as is available. The station will eventually all be planted up with robusta coffee, carefully selected from the best types growing in the district, and will be used to demonstrate improved cultural methods and pest control measures and to furnish good seed of the best types. The trial with Kenya Governor wheat in Karagwe has been disappointing, due to proper supervision not being possible owing to the bad road communications. In the Bukoba district there are also nine school gardens, which, although not altogether satisfactory, have done good work in improving the agriculture of the district.

56. In the BIHARAMULO DISTRICT the sub-stations and seed farms continued to do good work. The work is financed by the Native Treasury of the District and is chiefly concerned with food-crops, special efforts

being made for the extension of rice growing with a view to export, also with cotton and coffee and the production of beeswax.

57. In the past the extension of coffee has been confined to the Bugufi area. This year attention has been directed towards the extension of this crop in the Kimwani area as well. Both robusta and Arabica varieties are being tried in Kimwani, whilst the work in Bugufi is confined to the Arabica variety only. Two nurseries are being maintained (out of Departmental funds) at Nyamiaga and Kiziramuyaga and seedlings will be ready for distribution early in the new year.

58. Considerable attention has been paid to the promotion of a cotton industry in Rusubi, Busambiro and Kimwani areas of the Biharamulo district, the majority of the fourteen African Instructors being employed on this work. The quantity of cotton grown in these areas and supplied to the pioneer ginnery of the British Cotton Growing Association was only fifty-seven tons, but a marked improvement has been reported in the quality of the cotton produced, by inducing the natives to pick the cotton as it ripened on the plants and to sort it into two qualities before offering it for sale. Progress has also been reported in a special effort to persuade each native to put a plot of at least fifty by fifty yards under cotton in the 1930 season, with the result of largely increased sowings.

LINDI PROVINCE.

59. This large Province is served by two District Agricultural Officers, a third is shortly to be added and a Senior Agricultural Officer has been appointed for the south-eastern Circle, which includes this Province. The African Instructor staff numbers sixteen.

60. The outstanding feature of the Agricultural work of the Province was the establishing of an Agricultural Experiment Station at Mpapura, in the Mikindani district. This is the fourth station of the kind to be established in the Territory. Work on the station began in May and so far has been concerned with the laying out of experiments with cotton and native food crops. It is intended that cultural experiments with sisal should be one of the main features of the work, either at the station or as an extension service from it, but it awaits the decision on the proposals for a grant from the Colonial Development Fund.

61. In the old *Lindi* area *(Lindi, Mikindani, Newala, Masasi and Tunduru)* the total value of the exports in 1929 was £250,121 as compared with £206,966 in 1928. As the rainfall for the year was thirty-one per cent. below normal, this indicates very satisfactory progress. The estate production for 1929 represented forty-five per cent. of the total as compared with thirty-nine per cent. for 1928. The chief estate production crops were: sisal 3,336 tons (2,765 tons were exported in 1928) and copra 220 tons, valued at £107,891 and £3,922 respectively; whilst the four chief native export products, simsim, grain, cotton and groundnuts had respective values of £50,778, £30,263, £20,589 and £7,552. The crops of this area suffered a certain amount of damage from locusts in the earlier part of the year under review.

62. An enquiry into the cotton industry of the Lindi area showed that lack of progress was due to lack of suitable cultivation methods, which resulted in poor returns to individual growers, thus lowering the value of the crop in the minds of the natives. Efforts to raise the standard of cultivation by careful and concentrated instruction through the medium of properly trained African Instructors is being made and should bring about an early improvement. With the general spread of lining and spacing and more orderly cultivation of cotton, this crop, so well suited to the natural conditions, should develop in production considerably. There are now five sub-stations in the Lindi area. In addition to introducing improved varieties of food crops into the native agriculture and the demonstration of better cultural methods, attention is also being paid to the cash producing crops, groundnuts and simsim.

63. Estate agriculture in this Province is almost entirely confined to sisal and is likely to continue so, with a certain amount of interplanted cotton in the young sisal. The District Agricultural Officer states in his annual report:—

> "The practice of estate owners allowing natives to cultivate and grow crops on their estates is spreading and some of the finest crops in the area (Lindi) are those which have been raised in land newly cleared for sisal. Some estates also are allowing their labourers to devote a portion of the estate solely to the growing of family food crops, thus encouraging a higher standard of industry amongst the labour."

64. In the KILWA DISTRICT the year 1929 was a particularly unfavourable one for the agriculture of the area. The rainfall (twenty inches) was the second lowest on record. The year 1930 on the other hand has begun almost more unfavourably, owing to the heavy flooding of practically the whole district (the rainfall for the first three months totalling forty-eight inches). As the result considerable shortage of food existed. The exports of all crops from this district, with the exception of two minor export products, gum copal and wild rubber, were lower than in 1928, a total of £18,244 as compared with £26,870. The export products are entirely native production, the principal export crops for the year being simsim, copra, cotton and sorghum.

65. Efforts to induce the natives to practise better cultural methods are resulting in slow but sure progress, particularly in regard to proper spacing of crops. Attention has also been given, with encouraging results, to introducing leguminous crops and improved varieties of food crops into the native agriculture through the various sub-stations.

KIGOMA PROVINCE.

66. During the major portion of the year the District Agricultural Officer stationed at Kasulu was absent on leave and shortage of staff prevented his replacement. The agricultural work for the district suffered in consequence, though it was not entirely neglected, the Indian

Overseer appointed to the district for the coffee work three years ago carrying on the duties of inspection and instruction. The other District Agricultural Officer in this Province was stationed at Sumbawanga in the Ufipa District.

67. The native coffee industry in the KASULU and KIBONDO DISTRICTS, which is being fostered by the Department, is continuing to make steady progress, a further 20,000 robusta seedlings (including 000 of strain No. 9 from Uganda) being distributed to native growers. At the higher altitudes in the Kibondo area it was decided to foster an Arabica coffee industry, and 9,500 seedlings of this variety were distributed early in 1930 to 320 native growers. As in the previous year, the natives of both areas were keenly interested in growing this crop and numerous applications for seedlings were received. No Native Administration agricultural sub-stations for Kasulu and Kibondo have yet become possible, but the Senior Headmen in both districts have co-operated in the trial and increase of selected and improved varieties of food crops. Potchefstroom Pearl maize particularly has been a success and seed is eagerly sought by the natives.

68. In the UFIPA DISTRICT seven seed-farms, varying in size from two acres to twelve acres, were opened up, and various varieties of maize, millets and pulses were planted for multiplication purposes. Virginia bunch groundnuts were also planted on these seed farms, with the intention of ascertaining whether the oil-content will depreciate to the unusually low oil-content of the local Ufipa groundnut. At some sixty villages communal wheat plots were cultivated, for which approximately one ton of Kenya Governor variety was distributed. A Kigoma merchant has valued the wheat at from Shs. 3/50 to Shs. 4/- per thirty-five pounds for clean samples, which should prove a remunerative price to growers, who should be able to obtain a gross return of about Shs. 60/- per acre from a good crop of this wheat.

69. Cotton in the Rukwa Valley and on the Lake coast received a setback owing to the failure to secure the pioneer ginnery expected. All propaganda and distribution of seed had to be stopped. The matter is a source of regret as the valley is badly in need of a cash crop. There is, at the time of the writing of this report, a better promise of ginning facilities being provided. During the season under review an attempt was made to popularise the rice crop by distributing half a ton of the variety "Mele" to villages around Kasanga. Trial areas of flax were also grown by a few natives and made good growth.

70. Estate agriculture in the Kigoma Province is as yet small and is confined almost entirely to a few Europeans and Indians near the railway. The District Agricultural Officer stationed at Sumbawanga reports, however, that during the year a number of Europeans visited the district in order to inspect land, of whom three have put in claims for coffee land, one for flax, one for mixed farming, and others for grazing land.

IRINGA PROVINCE.

71. This Province is served at present by one District Agricultural Officer, with a small African Instructor staff. The two sub-stations opened last year, one at Kalenga in the Iringa district and one at Mdandu in the Njombe district, were maintained by Native Administration funds in an endeavour to increase both the quantity and quality of the native food crops. An African Instructor is stationed at Tekemwenzo, and in conjunction with the Native Authorities and under supervision of the District Officer, some instruction in ploughing and the training of cattle for draught purposes is being given. Two school gardens were started, one at Njombe and one at Kalenga, at the Native Administration schools at these centres. The chief difficulty in all native agricultural work in this Province is the difficulty of obtaining natives of the right type to train as Instructors. Seventeen men were put through a course of training for one year at the Malangali Central School farm, but although much trouble was taken both by the Education Department and the District Agricultural Officer, only four of the seventeen were found suitable for further training.

72. Estate Agriculture is a prominent feature in this Province. In his annual report the District Agricultural Officer states:—

> "As reported last year, it is with estate agriculture that the Department has been principally concerned in this Province, and the work of establishing a tobacco industry in the Ifunda area of the Iringa district has been continued. Small crops of heavy Virginia tobacco and Turkish tobacco were planted by the settlers and help was given in every branch of the production of leaf. A suitable building was erected in Dar es Salaam and the crops of Turkish tobacco of the three years, 1927 to 1929, were taken there for fermentation. Several bales were kept unfermented and were sent to London for marketing with the fermented leaf, to ascertain if they would arrive in a marketable condition. The leaf has not yet been sold and the experiment has, therefore, not yet been concluded."

It has been demonstrated, however, that although Dar es Salaam is suitable for the actual fermentation process of Turkish tobacco, the uncertain weather conditions at the time of the year when it must be done make it unsuitable for such operations as drying and re-baling. Every endeavour has been made to find a local sale for the tobacco, and trial samples are at present being tested on the market by a local manufacturer of cigarettes. From the experience obtained so far it appears that a more suitable type than the type which was grown (Soulouk) could be obtained.

73. The Iringa Bacon Factory has now been working for one year, but the quantity of the output of pig products has been disappointing. When it was first opened a great shortage of pigs of the right type handicapped its operations, and later, the isolation of Iringa by the railway washaways and the bad roads during the rains stopped the manufacture of any quantity of bacon for several months.

74. Coffee planting at Dabaga and Mufindi in the Iringa district, Lupembe in the Njombe district, Mbosi in the Mbeya district, and in the Rungwe district still continues but the bearing stage of the earliest planted trees has not been reached, the growth being slow, though good, and the Department continues to advise caution with this crop.

75. For the assistance in its infancy of tea planting at Mufindi, the sum of £500 was given by Government for the purchase of tea seed, and the seed arrived during the year. Tea is being planted in the Dabaga, Lupembe and Rungwe areas as well. Tea manufacture has actually started at Musekera Estate in Rungwe. When tea manufacture commences in the Iringa district, the labour for picking will become a serious problem. The feeding of the large numbers of labourers in these non-maize growing areas will open up a new market for the maize and other food crops of the Ifunda and Sao settlers.

76. The Land Development Survey completed the survey of the Province in connection with alienation of land for European settlement, and its report has been published.

MAHENGE PROVINCE.

77. The one District Agricultural Officer so far available for the promotion of the agriculture of this large Province is stationed in Songea and his activities have, therefore, been wholly in this district except for the special work of trial of coffee and cocoa in the Matumbi area of the Mahenge district. The African Instructor staff has been increased to nine, and has been posted in the areas of the principal Native Courts. So far the Native Authorities have not employed Instructors, but the increasing soundness in the financial position of the Native Treasuries brings this now within the bounds of possibility. The District Agricultural Officer reports that the consolidation of the system of Native Administration through the chiefs, which has taken place during the year, has been of the utmost help in carrying on the work of the Department. Through the District Officer, the authority of these Native Courts has been used to emphasise instructions of importance, to enforce agricultural regulations, and generally to further the work of agricultural development, especially in the more remote parts of the district.

78. The aims of the agricultural work in this Province are to improve the food crops of the natives and at the same time to provide them with cash crops which are able to bear the cost of transport to the coast (400 miles). Coffee, cotton and tobacco (of superior quality) are receiving particular attention. It is satisfactory to report that progress has been made along these lines particularly with coffee, in which crop considerable interest has been stimulated amongst the natives. The activities with cotton are as yet experimental. As an indication of the agricultural possibilities of the Province, mention may be made of awards obtained at the Dar es Salaam Exhibition for rice, millets, wheat and tobacco, particularly as most of the samples had to be obtained, for timely despatch to Dar es Salaam, before the best crops had ripened.

79. Owing to the difficulty experienced in adequately supervising the sub-stations and demonstration plots scattered throughout the district (Songea), a re-arrangement and concentration of effort has been made during the year. At Luhira, near Songea, an extensive sub-station has been started, replacing the two sub-stations at Ndirima and Gumbiro; these latter are being carried on as demonstration plots only. The trial plots in the North Hanga area and the cocoa trials in the Matumbi area of Mahenge district had to be abandoned owing to their complete inaccessibility during the rainy season. The sub-station at Lituhi on the Lake Nyasa shore was abandoned owing to the complete indifference, partly due to the large number of cattle owned by them, of the natives in the immediate area. The needs of the people of this area as a whole are being best served by concentrating on school garden work. The sub-station work in the Ungoni Plateau area includes trials and demonstrations with cotton, tobacco, coffee, maize, millets, pulses, groundnuts and rice, with seed multiplication of improved varieties of food crops for distribution to the natives. The coffee and tobacco work includes rearing of seedlings at suitable nurseries for distribution. The sub-station work in the Matengo Highland area is similar to that just described, with the exception of cotton, as this crop is unsuited to this area; efforts are concentrated more on coffee and tobacco and between two and three thousand coffee seedlings, besides large numbers of tobacco seedlings, have been distributed. A trial with Kenya Governor wheat was also carried out in this area and proved an unqualified success, and its early introduction to the native agriculture of this area is expected.

80. The increasing motor lorry transport partly as the result of opening up of new roads is doing much to improve the marketing conditions of the Province, and it is becoming increasingly easy to dispose of all produce which is of sufficient value to pay for the high cost of transport.

81. As mentioned in the previous report, there is only an insignificant amount of activity in estate agriculture in the Mahenge Province and this is confined almost entirely to the high-lying Mahenge Plateau.

PROGRESS OF THE CHIEF EXPORT CROPS.

82. This section gives the general progress of each of the chief export crops with, as far as possible, the production in the different areas. Appendix V presents the figures of export of the eleven principal agricultural and forest products in 1929, with those of 1913 and 1925 to 1928 for comparison.

SISAL.

83. The production of sisal fibre has increased rapidly due to the favourable prices during the past few years, though these, unfortunately, have now declined and the problem planters are at present faced with is that of reducing the cost of production. A dry decorticator which is about to be put on to the market will, if successful, bring this about substantially. The production for 1929 (45,728 tons) showed an increase of twenty-six per cent. and the export value (£1,485,593) was more than

equal to that of coffee, cotton, copra and groundnuts combined. The acreage under the crop was larger in all areas and particularly in the Tanga Province, where production was increased by 8,863 tons. Plantations have reached maturity in the Rufiji, Arusha, Kigoma and Mwanza districts for the first time. Prices generally were from £2 to £5 per ton lower than for the previous year. The exports from the principal areas for 1929, with a comparison of the 1928 figures, are shown in the following table:—

Exports of sisal by areas:—	1928 Tons	1929 Tons
Tanga	26,500	35,313
Morogoro and Dar es Salaam	5,652	6,279
Lindi and Mikindani	2,767	3,335
Moshi	1,253	789
Other areas	14	12
Total ...	36,186	45,728

COFFEE.

84. An unfavourable season resulted in a reduction in the output of coffee for 1929 of 1,574 tons (equal to fifteen per cent.) as compared with the previous record crop. Prices obtained, particularly of the lower grades, were also lower. New plantings were made by European planters and native farmers in the south-western highlands, but except for the extreme south-west, where a little coffee is produced in the Rungwe and Mbeya districts, this portion of the Territory contributes nothing as yet to the exports of this crop. Further trial plantings were made by natives in the Uluguru Mountains and the Kasulu Hills, under the supervision of the Department.

85. The figures of production in the more important areas in 1929 and the previous two years were as follows:—

	1927 Cwts.	1928 Cwts.	1929 Cwts.
Bukoba	78,879	156,640	135,880
Northern Provinces	50,428	45,732	37,942
Usambara district	1,853	5,604	2,898

The Bukoba production is almost completely native; sixty-nine per cent. was of the robusta type and the remainder of the Arabian. The total exports and estimated values of estate and native coffee for 1928 and 1929 were:—

	1928		1929	
	Cwts.	£	Cwts.	£
Estate	43,772	220,286	29,409	134,709
Native	164,850	519,361	147,731	454,162
Total ...	208,622	739,647	177,140	588,871

COTTON.

86. Notwithstanding the generally unfavourable season, the production of cotton was most encouraging. The output of lint from ginneries (a list of which is given in Appendix IV) of the seasonal crops from 1926 to 1929 is given below:

Province	In pounds				Difference per cent.	
	1926	1927	1928	1929	1928	1929
Eastern ...	5,442,152	2,839,710	7,506,758	6,982,400	+ 164	— 7
Tabora... ...	615,350	410,892	478,701	98,000	+ 17	— 75
Mwanza ...	2,687,650	2,648,995	4,422,357	3,012,800	+ 67	— 32
Lindi	559,573	340,620	525,726	784,800	+ 54	+ 32
Tanga	140,082	52,239	106,721	127,199	+ 104	+ 19
Northern ...	264,662	93,999	105,134	70,800	+ 12	— 34
Bukoba ...	2,819		36,127	38,090	—	+ 5
Total ...	9,712,288	6,386,455	13,181,524	11,114,089	+ 106	— 15
Bales	24,281	15,966	32,954	27,785		

The share of estate (non-native) production in 1929 was recorded as 9,682 bales (as compared with 8,542 bales in 1928), or thirty-five per cent. of the total, divided by districts as follows:—

Dar es Salaam District ...	2,426 bales	Tanga District	167 bales
Morogoro District	3,166 „	Lindi Province	181 „
Kilosa District	3,033 „	Northern Province	170 „
Bagamoyo District... ...	297 „	Mwanza Province	81 „
Rufiji District...	162 „		

Production in the Tabora and Bukoba Provinces is entirely by natives, and in the Mwanza Province almost entirely so. In all other areas in which this crop is grown estate production appears to be overtaking native production. In the sisal-growing areas a considerable amount of cotton has been produced as an interplanted crop with young sisal, a sound practice which is extending.

87. The sales of seed-cotton by natives during the 1929 season are shown in the following table, which should be compared with the similar tables on page 14 of the 1927-28 Report and on page 24 of the last Report:—

Area	1st Quality	2nd Quality	3rd Quality	Total	Value
	Kgs.	Kgs.	Kgs.	Kgs.	Shs.
Morogoro-Kilosa	3,342,758	736,322	612,499	4,691,579	1,892,145
Rufiji	93,936	14,277	57,744	165,958*	52,631
Bagamoyo	316,534	26,648	35,745	378,927	—
Lindi	725,014	27,989	93,077	846,080	309,005
Kilwa	95,974	7,895	27,160	131,029	65,820
Pangani and Handeni ...	81,658	4,241	8,692	94,591	31,387
Tabora Province	77,992	29,052	30,262	137,306	40,540
Mwanza Province	—	—	—	4,473,553	—
Biharamulo	43,334	13,684	—	57,018	15,890

NOTE.—*This figure does not include 38,700 kgs. of seed-cotton grown in the Rufiji district and marketed either in the Kilwa or Dar es Salaam districts.

88. The range of prices, which can be compared with those recorded in former annual reports, was as follows (in cents of a shilling per kilogramme):—

Centre	1st Quality		2nd Quality		3rd Quality	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
Ngerengere	47	40	36	32	23	20
Kilosa	48	40	35	30	22	15
Mikese	46	42	36	28	15	12
Kimamba	52	40	43	25	20	10
Bagamoyo	42	36	35	18	22	14
Mohoro (Rufiji)	51	44	41	35	25	22
Kilimani...	36	32	28	25	18	16
Lindi	40	36	30	26	20	18
Mikindani	40	33	30	23	20	15
Masasi	29	29	19	19	10	10
Nansio (Mwanza) ...	41	35	—	—	16	12
Missungwe	42	36	—	—	17	13
Usogore (Shinyanga) ...	40	35	35	30	18	15
Biharamulo	30	15	28	13	—	—

89. The surplus from the cess on seed-cotton sold by natives (one cent per kilogramme) in the Morogoro-Kilosa area during the 1928-29 season made the levying of the cess this season unnecessary. Two cotton market supervisors were again engaged during the buying season under this fund; the one was stationed at Kimamba market and the other near the Mzinga market in the Morogoro district.

GROUNDNUTS.

90. The exports of this crop in 1929 were as follows (1928 figures are given for comparison):—

	1928 Tons	1929 Tons
Mwanza and Northern Tabora	4,636	4,218
Central Province and Southern Tabora... ...	5,387	2,763
Remainder (chiefly Lindi)	572	784
Total ...	10,595	7,765

This entirely native-grown crop suffered considerably from the adverse rainfall conditions, particularly in the Tabora area. The popularity of the crop continues to increase largely as the result of the growing of higher yielding varieties. A larger portion of the crop than usual was consumed locally in replacement of grain crops which failed badly.

COPRA.

91. The export figures for 1929 as compared with the previous season were as follows:—

	1928 Tons	1929 Tons
Tanga-Pangani	4,152	2,813
Mafia...	1,626	1,699
Dar es Salaam and Bagamoyo	2,941	2,800
Kilwa-Lindi	599	608
Total ...	9,318	7,920

The condition of the plantations in the chief producing areas continues to improve as the result of the inspection under the Plant Pest and Disease (Coconut) Regulations. The decreased export is partly due to the unfavourable season but is also largely due to increased local use in the manufacture of soap.

SESAME (SIMSIM).

92. Increased plantings, particularly in the Lindi area, have resulted in an improvement in the exports, as follows:—

	1928 Tons	1929 Tons
Lindi...	1,888	2,789
Mwanza	428	478
Kilwa	580	447
Other areas	319	526
Total ...	3,215	4,256

A large portion of this crop is consumed locally, by the natives.

GRAINS.

93. The total exports of millets, rice, maize and pulses for the year were 160,924 cwts., valued at £95,091, as compared with 282,763 cwts., valued at £155,777 for 1928. In the following table the exports of rice, millets and maize are given from the chief areas of production:—

	1928		1929	
	Tons	Percentage of Total	Tons	Percentage of Total
Rice, Mwanza	2,126	53	2,398*	—
Millets, Lindi	5,323	69	3,509	73
Maize, Tanga	305	22	37	11
„ Lindi	535	38	323	89

NOTE.—*This figure represents the total export of rice by steamer and rail. The total export of rice from the Territory for 1929 was 2,594 tons.

94. The detailed figures for these are tabulated as follows:—

	1928 Cwts.	1929 Cwts.
BEESWAX—		
Morogoro, Dodoma and Tabora	8,185	4,784
Mwanza	262	203
Lindi*	1,169	1,619
Kilwa	128	72
Other Stations	71	43
CHILLIES	192	65
GUM ARABIC—		
Mwanza and Northern Tabora	13,398	20,327
GUM ANIMI (COPAL)—		
Bagamoyo	2,196	—
Kilwa	616	—
Lindi	55	45
Rufiji	120	—
MANGROVE BARK—		
Kilwa	69,740	69,540
Rufiji	95,700	40,600
RUBBER—		
Plantation (Ceara)	673	152
Wild	175	135
RAW SUGAR†	901	500
SYRUP (Molasses)	1,134	456
KAPOK	1,020	2,300

*Approximately 250 cwts. of the export from Lindi usually comes from Songea.
†Chiefly from Pangani.

LOCUST DESTRUCTION.

95. Locust destruction formed a considerable feature of the work of the Department during the year. The invasions, which came from the north, may be conveniently divided into four periods, as follows:—

(a) April-May 1928, when no egg-laying occurred and the fliers returned across the northern boundary of the Territory.

(b) November-December 1928, when egg-laying in Makania, South Pare and West Arusha areas took place, necessitating an anti-hopper campaign at Makania.

(c) January 1929, when egg-laying occurred in East Kilimanjaro, Makania, Hedaru and Mkomasi in South Pare, necessitating extensive anti-hopper campaigns in these areas. In this invasion swarms penetrated as far south as Lindi.

(d) November 1929, when egg-laying of a scattered description took place in numerous areas in the Northern and Tanga Provinces involving a considerable campaign. Scattered swarms made their appearance in the Mwanza, Tabora, Central and Eastern Provinces, but fortunately these were not on such a scale to require an organised campaign.

In the last campaign comparatively little damage to crops resulted as there was an abundance of natural food growth during the period of swarming. The destruction of hoppers was satisfactorily carried out, although under great difficulties owing to the impenetrable nature of the bush covering most of the areas invaded. Abnormal rains towards the end of the campaign aided considerably in the destruction of the swarms. It is believed that work of this nature will not again be necessary for some years, as the present swarming period of this species of locust (the Desert Locust *Schistocerca gregaria*) is apparently terminating. At the time of the writing of this report, no locusts remain in the Territory, so far as is known. The last occurrence was reported in April 1930 of a small swarm of a different species (*Nomadacris septemfasciata*) which invaded the Territory from the south, apparently the same species to that which has done so much damage in South Africa on rare occasions; fortunately this swarm has disappeared and no more has been heard of it.

LEGISLATION.

96. The following legislation affecting the agriculture of the Territory was enacted during the year:—

The Destruction of Locusts Ordinance, 1929 (enacted 12th April).

The Produce Export Ordinance, 1929 (enacted 10th April).

The Plant Pest and Disease (Coffee) Regulations, 1928, Order Application of Regulation 4 to the Bukoba District as from the first day of May, 1929).

The Destruction of Locusts Regulations, 1929 (enacted 22nd April).

The Cotton Cess Rules, 1929 (imposing a cess on the purchases of cotton grown by natives in the Mwanza Province, and the Lindi, Mikindani, Masasi and Tunduru districts—enacted 19th July).

Customs (Cotton Lint and Cotton Seed) Regulations, 1929 regulating the importation of cotton seed and cotton lint in transit for export—enacted 21st August).

The Cotton (Regulation of Weighing) Rules, 1930 (regulating the type of scale to be used—enacted 12th March).

METEOROLOGICAL MATTERS.

97. The number of meteorological stations equipped and supervised by the Department at the end of 1929 was 122, of which 93 furnished regular records; of these 55 had rain-gauges only. The second-order station at the Agricultural Headquarters at Dar es Salaam was maintained and the records as well as those of rainfall at various stations in the Territory were published regularly in the Government *Gazette* and

the local press. The newly-organised East African Meteorological Service, with headquarters at Nairobi, will equip and take over the work of the higher-order stations, but it is intended that the Department shall continue for some time the management of the lower-order stations (with a maximum equipment of rain-gauge, maximum and minimum thermometers and wet and dry bulb thermometers) the equipment being maintained and extended as requisite by the East African Meteorological Service. This Service is undertaking a review, for statistical purposes, of the whole of the rainfall records of the Territory to the end of 1929. When the compilation is complete, the records will be printed as a supplement to this Report, and similarly issued. This Report will, therefore, not contain the usual meteorological appendices.

H. WOLFE,
Acting Director of Agriculture.

APPENDIX I.

LIST OF EUROPEAN STAFF AS ON 31ST MARCH 1930.

Director	A. H. Kirby, O.B.E.	On leave, pending transfer to Sierra Leone.
Deputy Director (Acting Director)	H. Wolfe	Dar es Salaam.
Entomologist	A. H. Ritchie ...	Morogoro.
Assistant Entomologist ...	W. V. Harris ...	Morogoro.
Mycologist	G. B. Wallace ...	Morogoro.
Agricultural Economist ...	R. R. Staples ...	Dar es Salaam.
Senior Agricultural Officers	J. F. C. O'Brien ...	On leave.
	C. K. Latham ...	,,
	A. S. Richardson ...	,,
	A. J. Wakefield ...	,,
District Agricultural Officers	A. E. Haarer ...	Morogoro.
	L. C. Edwards ...	Bukoba.
	D. G. Burns ...	On leave.
	C. M. H. Sutherland	Kilwa.
	W. J. Hill	Land Development Survey.
	C. B. Garnett ...	Singida.
	D. Sturdy	Moshi.
	H. Musk	Singida.
	A. S. Stenhouse ...	Songea.
	C. Harvey	Moshi.
	C. J. McGregor ...	Malangali.
	A. H. Savile ...	Biharamulo.
	N. V. Rounce ...	Sumbawanga.
	J. E. Bruce ...	Lushoto.
	R. M. Maynard ...	Bagamoyo.
	B. J. Hartley ...	Mwanza.
	W. B. Hutchinson	Shinyanga.
	R. D. Linton ...	Mikindani.
	J. Robertson ...	Rufiji.
	F. R. Sanders ...	Morogoro.
	Five vacancies.	
Cotton Investigators ...	H. Marsland ...	On leave.
	T. C. Cairns ...	Rufiji.
Head Gardener	T. H. Marshall ...	Dar es Salaam.
Agricultural Assistants ...	E. T. Ward ...	Morogoro.
	R. W. Collett ...	On leave.
	R. H. Dick ...	Ngudu, Kwimba.
	T. M. W. Sheppard	On leave.
	T. S. Jervis ...	Bukoba.
	L. Leslie-Moore ...	Moshi.

APPENDIX I.—(contd.).

Agricultural Assistants—(contd.)	G. S. Brown	...	Mwanza.
	G. H. Turnbull	...	Moshi.
	B. E. Eustace	...	,,
	D. H. R. Lyon	...	Shinyanga.
Chief Clerk	W. E. Pownall	...	Dar es Salaam.
Clerk	C. H. Taylor	...	On leave.
	D. F. T. Brown	...	Dar es Salaam.

APPENDIX II.

(a)—DISTRIBUTION OF PLANTING MATERIAL DURING THE YEAR ENDING 31ST MARCH 1930.

Cotton Seed	1,588	tons.
Groundnuts	15,231	lb.
Maize	26,311	lb.
Millets	6,559	lb.
Beans and Peas	6,032	lb.
Rice	8,745	lb.
Potatoes	2,110	lb.
Wheat and Barley	2,655	lb.
Coffee	51,500	seedlings.
Casava	25,275	sets.
Cover crops	33	lb.
Fodder crops	27	lb.
Fruit plants	7	lb.
Vegetable seeds	50	lb.
Shade trees and wind breaks, ornamental trees and shrubs	1,127	plants.

(b)—PLANT INTRODUCTIONS 1929/30.

OIL SEEDS:

Alcurites Fordii (Tung-oil tree)
Aleurites Montana do.

COTTON SEED:

Variety U4 (from South Africa)
,, S.G.27 (from Uganda)
,, S.G.29 do.
,, Over-the-top (from South Africa)
,, Webber (from Sudan)

FODDER PLANTS:

Ceratonia siliqua (The Carob tree)
Sterculia diversifolia (Kurrajong)
Eucalyptus albens
Casuarina cunninghamiana

APPENDIX II.—(contd.).

FODDER PLANTS—(contd.):

Panicum antidotale
Atriplex nummularia (Old Man salt bush)
Cytisus proliferus (Tree lucerne)
Pentzia incana (Karroo bush)
Canna edulis

FRUIT PLANTS:

Cyprus almond
Rubus probus (The Queensland raspberry)
Blighia sapida (Akee)
Sideroxylon dulcificum
Olea spp. (Olive)

FOOD PLANTS:

Cowpea var. Arlington
,, ,, New Era
,, ,, Groit
,, ,, Black
,, ,, Brabham
Sugar beet (two varieties)

TOBACCO:

Variety Heavy Western
,, Willow Leaf

ESSENTIAL OIL AND DYE PLANTS:

Mentha piperita (Peppermint)
Nyctanthus arbor-tristis
Pistacia lentiscus (Mastic)
Pistacia terebinthus var. Palaestina (Chian-turpentine)
Caesalpinia sappan

VEGETABLES:

Sesbania grandiflora

SHADE TREES AND WIND BREAKS, ORNAMENTAL TREES, SHRUBS AND PLANTS:

Gliricidia maculata (madre-de-cacao)
Albizzia moluccana
Mamillaria lasiacantha
,, *Grahami*
Coryphantha radiosa
Opuntia Kloiniae
Echinocerens coccinens
Epithelantha micromeris
Escobaria tuberculosa
Echinocactus horizonthalonuis
Echinocerens Englemannii
,, *chloranthus*
,, *dasyacanthus*

} (Flowering cacti).

APPENDIX II.—(contd.).

Acacia longifolia
,, *melanoxylon*
,, *scorpioides*
Cassia marylandica
,, *nictitans*
,, *chamaechorista*
Coix Lachryma-Jobi (Job's tears, six varieties)
Hibiscus diversifolia
Rivina humilis
Solanum elaeagnifolium
Schinus terebinthifolius
,, *dependens*
Cassia Fistula
Chrysalidocarpus lutescens
Wallichia disticha
Montanoa bipinnatifida
Calliandra caracassana
Muntingia Calabura
Euterpe edulis
Copernicia cerifera (wax palm)
Ptychosperma Macarthuri
Livistona Hoogendorpi
Diplothemium candescens
Maximiliana caribaea
Sabal mauritiforme
Attalea spectabilis
,, *Cohune*
(Palms).
Acacia cyanophylla
Mimosa rubicaulis
Brownea macrophylla
Acacia villosa
Cassia marginata
Glaziova Treubiana
Ixora Javanica
Licuala amplifrons
Mimosa invisa
Myoporum sandwicense
Argyreia speciosa
Bauhinia purpurea
Genista canariensis
Hibiscus mutabilis
Clerodendron siphonanthus
Verschaffeltia splendida

APPENDIX II.—(contd.).

Nehrosperma van Houtteana
Deckenia nobilis
Dendrobium chrysanthum
,, *fimbriatum* var. *oculatum*
,, *densiflorum*
,, *nobile*
Rhyncostylis retusa (Orchids)
Aerides multiflorum
Saccolabium ampullaceum
Thunia (Phaius) alba
Vanda teres
Coelogyne flaccidum
Pleone maculata
Vanda cristata
Acacia Baileyana
Callitris cupressiformis
Juniperus Bermudiana
Pithecolobium Unguis-cati
Chrysalidocarpus lutescens
Martinozia corallina (Palms)
Ptychoraphis augusta
Livistona altissima
Sabal Blackburniana

APPENDIX III.

LIST OF SUB-STATIONS.

WITH SPECIAL ECONOMIC CROPS SHOWN (OTHER THAN IMPROVED VARIETIES OF THE LOCAL FOOD CROPS).

	Sub-station	*Crop.*
Central Province:		
Singida District ...	Singida ...	Date Palm.
	Mkulusi ...	Date Palm.
Mkalama District ...	Durumo ...	Date Palm, Coffee.
Manyoni District ...	Muhalala ...	Date Palm.
	Moweni ...	Date Palm.
	Mwitikiro ...	Nil.
	Meia Meia ...	Nil.
Eastern Province:		
Morogoro District	Kinyenzi ...	Nil.
	Mgeta ...	Almonds, Potatoes. Rice.
	Ruvu Bridge ...	Citrus, Coffee. Hydnocarpus.
	Diongoya ...	Citrus, Coffee.
	Myuha ...	Nil.
Kilosa District ...	Mamboya ...	Nil.
	Masanze ...	Nil.
Rufiji District ...	Ndundu ...	Nil.
	Rusende ...	Nil.
	Mtunza ...	Nil.
	Kwangwasi ...	Nil.
Lindi Province:		
Lindi District ...	Mnacho ...	Nil.
Mikindani District	Mchika ...	Groundnuts.
Masasi District ...	Nachilika ...	Nil.
Newala District ...	Mtopwa ...	Groundnuts, Simsim.
Tunduru District ...	Tunduru ...	Nil.
Kilwa District ...	Njinjo ...	Groundnuts, Rice.
Kigoma Province:		
Ufipa District ...	Sumbawanga ...	Flax.
Kasulu District ...	Kasulu ...	Nil.
	Nurseries ...	Coffee.
Kibondo District ...	Nurseries ...	Coffee.
Kigoma District ...	Karema ...	Nil.
Tabora Province:		
Nzega District ...	Ndomo ...	Groundnuts.
	Mangoi ...	Groundnuts.
	Nyama ...	Groundnuts.
	Ndala ...	Groundnuts.
	Nyawa ...	Groundnuts.
Kahama District ...	Zongomero ...	Groundnuts.

APPENDIX III.—(contd.).

	Sub-station.	*Crop.*
Iringa Province:		
Iringa District ...	Kalenga ...	Groundnuts, Simsim.
Njombe District ...	Mdandu ...	Groundnuts.
Mahenge Province:		
Songea District ...	Lipumba ...	Cotton, Tobacco. Groundnuts.
	Luhira ...	Cotton, Tobacco.
	Gumbiro ...	Cotton, Groundnuts.
	Nidirima ...	Cotton, Groundnuts.
Mwanza Province:		
Mwanza District ...	Kisesa Isanguja	Groundnuts, Cotton.
Mwimba District ...	Manthare ...	Groundnuts, Cotton.
	Ngudu ...	Groundnuts,
Maswa District ...	Shanwa ...	Groundnuts.
	Ntusu ...	Groundnuts.
Bukoba Province:		
Bukoba District ...	Nyakato ...	Coffee, Sub-tropical Fruits.
Biharamula District	Ntungamo ...	Nil.
	Nyamiaga ...	Coffee.
Northern Province:		
Moshi District ...	Rombo Mkuu ...	Nil.
	Kahe ...	Nil.
	Moshi ...	Nil.
Arusha District ...	Meru ...	Nil.
Tanga Province:		
Pare District ...	Usangi ...	Nil.
Tanga District ...	Muhesa ...	Citrus, Oil Palm.
Usambara District ...	Vuga ...	Potatoes.
	Bumbuli ...	Potatoes.
	Mlalo ...	Nil.
	Nurseries ...	Coffee.
Pangani District ...	Langoni ...	Groundnuts, Simsim.
	Mivume Mingi	Simsim.
Handeni District ...	Chanika ...	Groundnuts.
	Magamba ...	Tobacco.
	Vunira ...	Tobacco, Groundnuts.
	Mgara ...	Nil.
	Kwekivu ...	Chillies.
	Korokura ...	Tobacco, Groundnuts.
	Mswaki ...	Groundnuts, Cotton.

Appendix IV.

List of Ginneries existing in 1929-30.

Province and District	Locality	Number of Gins		Licencee
		Saw	Roller	
Eastern:				
Dar es Salaam ...	Ruvu	—	14	India-Uganda Co.
,,	Dar es Salaam ...	1	16	Liverpool-Uganda Co.
,,	Pugu	1	18	Abdulrasul & Sons
Morogoro	Morogoro	—	28	Tanganyika Cotton Co.
,,	Mikese	3	19	Japan Cotton Trading Co.
,,	Ngerengere	1	7	Liverpool-Uganda Co.
,,	Mlali	—	18	Tanganyika Cotton Co.
,,	Duthumi	1	8	Tanganyika Cotton Co.
Kilosa...	Kilosa	—	14	E. A. Sisal Planters.
,,	Kimamba †	—	—	N. H. Georgiades.
,,	Rudewa	—	20	Tanganyika Cotton Co.
,,	Mkata	—	12	Tanganyika Cotton Co.
,,	Turiani	—	6	Tanganyika Cotton Co.
,,	Msowero	—	6	Kladites and Samaris
Bagamoyo	Bagamoyo	1	8	Holy Ghost Mission
,,	Kisauke *	—	2	S. G. Drosopoulos
Rufiji	Kilimani	—	12	Kilimani Estates
,,	Logeloge	—	6	Logeloge Estates
Lindi:				
Lindi	Lindi	—	12	Mathuradas Kalidas
Kilwa	Kikanda	—	8	Jaffer Samji & Co.
Tanga:				
Tanga	Tongoni†	1	10	G. Galanos
Pangani	Langoni	—	—	Kwashemzi Estates
Handeni	Mamundu	1	—	Kwashemzi Estates
Northern:				
Moshi...	Moshi...	—	6	N. Dadani
,,	Himo	1	12	Shariff Jiwa & Co.
,,	Himo*	—	2	A. Mongardi
,,	Himo*	1	1	F. Deusebis
Mbulu	Idulu‡	—	5	M. Michaelakis
Tabora:				
Shinyanga	Usogore	4	—	B.E.A. Corporation
Shinyanga	Luhombo	4	—	B.E.A. Corporation
Mwanza:				
Mwanza	Mwanza	—	18	Nakasero Trading Co.
,, ...	Murutunguru ...	1	10	White Fathers' Mission
,, ...	Ihale	—	11	Mwanza Cotton Trading Co.
,, ...	Bukumbi	—	14	Bhagwanji Sunderji & Co.
Kwimba	Nyambiti	2	6	B.C.G. Association
,, ...	Nyanguge	2	5	B.C.G. Association
,, ...	Pambani	—	11	Kampala General Agency
,, ...	Runere	5	—	B.E.A. Corporation
Maswa	Malampaka	5	—	B.E.A. Corporation
,, ...	Nasa	—	12	Narandas Rajaram & Co.
Bukoba:				
Biharamulo	Biharamulo	2	—	B.C.G. Association

*Private ginneries. †Non-native cotton only. Not licensed in 1929-30. ‡Not licensed.

Appendix V.

Tanganyika Territory.—Principal Exports, 1913 and 1925-26-27-28-29.

Export	1913				1925				1926			
	Quantity Cwts.	Value £	Per cent. of Total Value	Order	Quantity Cwts.	Value £	Per cent. of Total Value	Order	Quantity Cwts.	Value £	Per cent. of Total Value	Order
Sisal	416,680	535,580	30.1	I	365,520	688,451	22.9	I	500,400	911,293	29.1	I
Hides and Skins ...	69,120	274,511	15.4	III	53,225	240,165	8.0	IV	41,907	164,435	5.3	V
Cotton	43,840	120,753	6.7	IV	90,043	540,481	18.0	II	97,723	427,437	13.7	III
Copra...	109,540	117,401	6.6	V	152,460	160,800	5.3	VI	146,960	152,228	4.9	VI
Groundnuts	179,220	95,932	5.3	VI	181,100	178,685	5.9	V	317,340	154,903	8.1	IV
Beeswax	11,180	70,743	4.0	VII	5,858	42,755	1.4	X	6,147	48,179	1.5	IX
Coffee (Raw)	21,180	46,563	2.6	VIII	120,186	481,055	16.0	III	130,793	495,199	15.8	II
Simsim	29,520	20,407	1.1	XI	67,920	71,561	2.4	VII	71,260	68,585	2.2	VII
Rice	15,420	8,717	0.5	—	60,921	62,232	2.1	VIII	65,295	57,564	1.8	VIII
Millet...	18,210	5,498	0.3	—	66,531	25,517	0.8	—	58,126	24,094	0.8	—
Total ...	913,910	1,296,105	72.6	—	1,163,764	2,491,702	82.8	—	1,435,951	2,603,917	83.2	—
Plantation Rubber ...	25,740	309,195	17.5	II	7,520	49,794	1.6	IX	7,151	41,310	1.3	X
Ghee	6,656	15,400	0.8	X	7,658	33,770	1.1	—	7,428	32,577	1.0	—
Cotton Seed	—	—	—	—	86,980	32,560	1.1	—	105,900	22,185	0.7	—

Export	1927				1928				1929			
	Quantity Cwts.	Value £	Per cent. of Total Value	Order	Quantity Cwts.	Value £	Per cent. of Total Value	Order	Quantity Cwts.	Value £	Per cent. of Total Value	Order
Sisal	660,240	1,160,735	33.7	I	723,720	1,111,429	27.4	I	914,560	1,485,593	39.9	I
Hides and Skins ...	55,802	238,890	7.0	IV	65,848	374,830	9.3	IV	50,988	223,002	5.9	IV
Cotton	78,814	361,916	10.5	III	97,863	495,405	12.2	III	98,948	487,863	13.1	III
Copra...	145,340	143,024	4.2	VI	186,360	191,197	4.7	V	158,400	145,015	3.8	V
Groundnuts	282,940	238,082	6.9	V	211,900	188,582	4.7	VI	155,300	120,448	3.2	VI
Beeswax	11,169	80,863	2.4	VII	9,815	71,079	1.7	VIII	6,721	48,149	1.2	IX
Coffee (Raw)	131,899	463,420	13.5	II	208,622	739,657	18.3	II	177,140	588,871	15.8	II
Simsim	74,660	74,017	2.2	VIII	64,300	61,342	1.5	IX	85,120	74,773	2.0	VII
Rice	78,820	72,253	2.1	IX	79,973	85,884	2.1	VII	51,884	58,985	1.5	VIII
Millet...	72,268	29,164	0.9	X	154,636	52,243	1.3	X	95,323	30,334	0.8	—
Total ...	1,591,952	2,862,364	83.4	—	1,803,037	3,371,648	83.2	—	1,794,384	3,263,033	87.2	—
Plantation Rubber ...	1,738	7,065	0.2	—	673	3,008	0.1	—	153	597	0.01	—
Ghee	7,912	30,015	0.9	X	10,002	37,924	0.9	—	9,073	36,547	0.9	—
Cotton Seed	91,320	18,440	0.5	—	139,240	33,099	0.8	—	174,640	46,550	1.2	X